



# UNITED STATES PATENT AND TRADEMARK OFFICE

LEO  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/018,433   | 02/11/2002  | Christophe Brugidou  | 1721-41             | 4353             |
| 23117  | 7590        | 07/12/2005           | EXAMINER            |                  |
| NIXON & VANDERHYE, PC<br>901 NORTH GLEBE ROAD, 11TH FLOOR<br>ARLINGTON, VA 22203 |             |                      | BROWN, TIMOTHY M    |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 1648                |                  |
| DATE MAILED: 07/12/2005  |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/018,433             | BRUGIDOU ET AL.     |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Timothy M. Brown       | 1648                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 September 2004.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 6-14 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20 December 2001</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

### **DETAILED ACTION**

This Non-Final Office Action is responsive to the communication received September 2, 2004. Claims 1-5 are under examination, while claims 6-14 are withdrawn from consideration.

The objection to claim 3 made is withdrawn. The rejection of claims 1-5 under the written description provisions of 35 U.S.C. 112, first paragraph is withdrawn. The following rejections are maintained: claims 1-5 under the enablement provisions of 35 U.S.C. 112, first paragraph; and claims 1-5 under 35 U.S.C. 112, second paragraph.

#### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on the declaration filed February 11, 2002. It is noted, however, that a certified copy of application serial number FR 99/07831 does not appear in the file as required by 35 U.S.C. 119(b).

#### ***Claim Rejections - 35 USC § 112, First Paragraph***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.** The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention without undue experimentation.

A number of factors must be considered in determining whether the specification requires one skilled in the art to invest “undue experimentation.” These factors include: the breadth of the claims; the state of the prior art; the level of predictability in the art; and the amount of direction provided by the inventor. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404.

Applicants’ claims are drawn to a method for isolating the recognition and transport proteins that are involved in transporting a pathogenic virus through plant tissue plasmodesmata. The method isolates these proteins from any plant and for any virus that circulates through plasmodesmata. The method comprises the steps of subjecting a plant sample to a Western blot using anti-capsid antibody, and collecting the non-immunodetected bands.

According to the state of the art, collecting the inventive non-detected bands requires a secondary marker. Stains such as Coomassie Blue highlight proteins so that they can be located and extracted. Applicants’ specification provides no direction as to how non-immunodetected bands can be collected when they have not been identified with a stain. Thus, the skilled artisan would have to perform undue experimentation to practice Applicants’ method.

Undue experimentation is also required to separate the recognition and transport proteins from the other non-immunodetected bands. This results because, assuming non-immunodetected bands can be observed, Applicants’ method collects all non-immunodetected bands from a plant sample except those proteins captured by the anti-capsid antibody. Therefore, the collected bands would consist of every plant protein from the sample, not just the desired recognition and transport proteins. One skilled in the art could not easily predict which bands comprise the recognition and transport proteins since a plant tissue homogenate would produce a wide range of protein bands. Moreover, Applicants’ specification does not provide direction as to which

bands comprise the plants' recognition and transport proteins. In fact, the specification states that proteins of a specific molecular weight are only "of potential interest." Thus, the skilled artisan would have to perform undue experimentation in order to practice Applicants' invention.

Because undue experimentation is required to practice Applicants' invention, Applicants' invention fails to satisfy the enablement requirement of 35 U.S.C. 112, first paragraph.

***Claim Rejections - 35 USC § 112, Second Paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph,** as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. Claim 1 omits two essential steps. First, claim 1 omits the step of providing a non-specific marker that identifies the proteins that are not recognized by the anti-capsid antibody. It is clear that this step is required in that claim 1 recites collecting non-immunodetected bands. Second, claim 1 omits the step of purifying the sample such that only complexes of virus and transport/recognition proteins are separated by Western blot. This is clearly required since isolating transport/recognition proteins using only an anticapsid antibody dictates that only transport, recognition and capsid proteins be present. For at least these two reasons, claims 1-5 are rejected under 35 U.S.C. 112, second paragraph for omitting essential steps.

***Response to Arguments***

**Enablement**

Claims 1-5 were rejected for failing to comply with the enablement requirement because the specification failed to show one skilled in the art how to collect Applicants' non-immunodetected bands. Applicants urge that portions of the specification relating to silver staining (pages 48-65 and Example 13) provide adequate teachings to one skilled in the art on how to collect non-immunodetected bands. However, this teaching does not enable the collecting of non-immunodetected bands since the breadth of the claims provides that the bands are not stained or otherwise revealed. The cited portions of the specification would be enabling if the claims were limited to require some kind of staining or resolving step. If this were the case, one skilled in the art could refer to the specification for directions on how to perform such a resolving step. However, the claims do not require or hint at any kind of labeling. Thus, Applicants' reference to the specification fails enable one skilled in the art to collect non-immunodetected bands as claimed.

Claims 1-5 were also rejected as non-enabled because undue experimentation would be required to use the method for isolating the claimed recognition and transport proteins. The claims provide that "samples containing complexes of . . . proteins with viral particles are subjected to electrophoresis and Western Blot. . ." The breadth of the claims therefore provides that recognition and transport proteins can be isolated from any infected plant sample (e.g. a tissue homogenate) using electrophoresis and Western blotting. Using electrophoresis and Western blotting on a plant homogenate would essentially produce a band for every protein within the homogenate. Thus, the claimed method would fail to distinguish proteins involved in

Art Unit: 1648

the recognition and targeted transport of pathogenic viruses from other proteins within the sample. Note that Applicants' remarks fail to address this ground of rejection. Thus, Applicants' traverse of this ground of rejection is not persuasive.

Indefiniteness

Applicants argue claims 1-5 satisfy 35 U.S.C. 112, second paragraph because one skilled in that art would understand that the non-immunodetected bands are "directly harvested from the stained gel and a non-specific marker is not necessary." This point however acknowledges that the gel must be stained in order to remove the non-immunodetected bands. Neither would one skilled in the art understand that the claims require a staining step; the claims do not require or otherwise suggest that any form of staining takes place. Therefore, Applicants' remarks fail to overcome the indefiniteness rejection of claims 1-5.

Applicants' also argue claims 1-5 satisfy 35 U.S.C. 112, second paragraph because the specification makes it clear that host-virus-protein complexes are harvested in the first fraction which are identified as purified virus. However, one skilled in the art would not understand that the claimed recognition and transport proteins may be found in this fraction since there is nothing in the claims that suggests or otherwise hints at the fractions from the specification. Indeed, the claims do not involve "fractions" at all since the method depends on a Western blot that produces bands on a gel. Thus, Applicants' reference to the specification fail to overcome the indefiniteness rejection of claims 1-5.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a) Yasuo (EP 0244207A1) 04 November 1987
- b) Schwarzberg (US 4,235,869) 25 November 1980

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

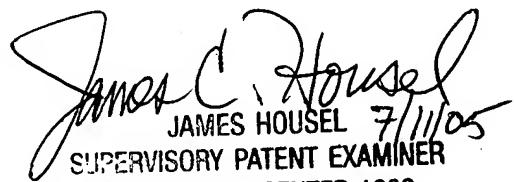
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M. Brown whose telephone number is (571) 272-0773. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on (571) 272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Timothy M. Brown  
Examiner  
Art Unit 1648

tmb

  
JAMES HOUSEL 7/1/05  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600  
